PREVALENCE AND ASSOCIATED FACTORS OF NEUROCOGNITIVE IMPAIRMENT AMONG PEOPLE WITH TRAUMATIC BRAIN INJURY SURVIVORS ATTENDING FOLLOW UP TREATMENT AT SURGERY REFERRAL CLINIC IN JIMMA MEDICAL CENTER, JIMMA, SOUTHWEST ETHIOPIA: A CROSS-SECTIONAL STUDY

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A RESEARCH THESIS SUBMITTED TO JIMMA UNIVERSITY, INSTITUTE OF HEALTH, FACULTY OF MEDICAL SCIENCE, DEPARTMENT OF PSYCHIATRY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR MASTERS DEGREE OF SCIENCE IN INTEGRATED CLINICAL AND COMMUNITY MENTAL HEALTH

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PREVALENCE AND ASSOCIATED FACTORS OF NEUROCOGNITIVE IMPAIRMENT AMONG PEOPLE WITH TRAUMATIC BRAIN INJURY SURVIVORS ATTENDING FOLLOW UP TREATMENT AT SURGERY REFERRAL CLINIC IN JIMMA MEDICAL CENTER, JIMMA, SOUTHWEST ETHIOPIA: A CROSS-SECTIONAL STUDY

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Abstract

Background: Neurocognitive impairment is a clinically significant acquired cognitive decline in one or more six principal cognitive domains Neurocognitive impairment poses considerable public health challenges worldwide. Traumatic brain injury is one of the conditions which are affecting younger and older individuals, and elevating risk of developing neurocognitive impairment and associated with adverse outcomes including prolonged hospital stays and increased mortality. However, there is not enough evidence about the prevalence and associated factors of neurocognitive impairment in people who survives from traumatic brain injury. Therefore, this study aims to fill this gap.

Objectives: To assess the prevalence and associated factors of neurocognitive impairment among traumatic brain injury survivors attending treatment in surgical referral clinic at Jimma medical center, Jimma, Southwest Ethiopia, 2021.

Methods: Institutional based cross-sectional study design was employed. Data was collected through interviewer administered pre-tested and structured questionnaire from 326 consecutively selected patients with traumatic brain injury attending follow up treatment at JUMC from august 2021 to september2021. Neurocognitive status was assessed by using mini-mental status examination (adapted). Data was entered into Epi data version 3.1 and exported to Statistical Package for Social Science version 25 (SPSS 25.0) for analysis. Bivariate and multivariable Logistic regressions were computed to test association between exposure variables and outcome variable. Adjusted odd ratio (AOR) with 95% confidence interval was calculated to test strength of association and Statistical significance was set at p-value of < 0.05 in the final model.

Results: The prevalence of neurocognitive impairment was 12.58%. Age older than 60year (AOR=5.96.; 95% of CI: 1.83,19.36), history of mental illness (AOR=2.52.; 95% of CI: 1.045,6.09), history of comorbid medical illness (AOR=3.012.; 95% of CI: 1.02,8.88) low Glasgow coma scale score (AOR=6.99.; 95% of CI: 2.73,17.91), and past history of head injury (AOR=4.817.; 95% of CI: 2.004,11.57),were associated with neurocognitive impairment.

Conclusion: The prevalence of neurocognitive impairment in this study was 12.58. Age group older than 60 year, having comorbid medical and mental illness, having low Glasgow coma scale score, having past history of head injury were variables become significantly associated with neurocognitive impairment. The finding of this study create good alarm to be alert to give attention on routine screening of neurocognitive impairment in patients with traumatic brain injury and to give special concern to patients with above stated factors.

Key Words: Neurocognitive impairment; mini-mental status examination traumatic brain injury, jimma, Ethiopia.

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List of Abbreviation and Acronyms

AD	Alzheimer's disease
ADI	Alzheimer's Disease International
DALY	Disability Adjusted Life Year
DSM-5	Diagnostic and Statistical Manual revised text 5
HIV	Human Immunodeficiency Virus
IADL	instrumental activities of daily living
JMC	Jimma Medical Centre
MCI	Mild Cognitive Impairment
MMSE	Mini-Mental State Examination
NCD	Neurocognitive Disorder
RTA	Road Traffic Accident
SSA	Sub-Sahara Africa
TBI	Traumatic Brain Injury
USD	United States Dollar
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1.1. Background of the Study

Neurocognitive impairment is a clinically significant acquired cognitive decline in one or more six principal cognitive domains include complex attention, executive function, learning and memory, language, perceptual–motor function, and social cognition which results in a significant decline from a previous level of functioning(1).

Neurocognitive impairment cluster comprises three syndromes, each with a range of possible etiologies: delirium, mild neurocognitive disorder and major neurocognitive disorder.

The major or mild NCD subtypes are NCD due to Alzheimer's disease, Lewy bodies, Parkinson's disease, prion disease, Huntington's disease, HIV infection, traumatic brain injury, vascular, frontotemporal, NCD due to another medical condition, NCD due to multiple etiologies, substance/medication-induced and unspecified NCD(1).

The essential feature of cognitive impairment is acquired cognitive decline in one or more cognitive domains based on both a concern about cognition on the part of the individual, a well-informed informant, or the clinician, and performance on an objective assessment that falls below the expected level or that has been detected to decline over time(2).

With the aging population, the prevalence of major NCD (dementia) is rising. The prevalence of moderate to severe cognitive impairment in different population groups is approximately 5 % in the general population older than 65 years of age, 20 to 40 % in the overall population older than 85 years of age, 15 to 20 % in outpatient general medical practices, and 50 % in chronic care facilities(3).

Development of cognitive impairment may be due to different physiological factors associated with ageing. For certain etiological subtypes, the diagnosis of cognitive impairment depends substantially on the presence of a potentially causative entity, such as Parkinson's or Huntington's disease, or a traumatic brain injury or stroke in the appropriate time period (1,4).

The term NCD is widely used and often preferred for conditions affecting younger individuals, such as impairment secondary to HIV/AIDS and traumatic brain injury (TBI) (1).

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To be attributable to traumatic brain injury, the cognitive impairment must present either immediately after the brain injury occurs or immediately after the individual recovers consciousness after the injury and persist past the acute post-injury period(1,2,5).

One in three mild traumatic brain injury victims have persistent long-term cognitive deficits, which can occur despite normal results on conventional neuroimaging studies (6).

Though the burden and prevalence of these problems is noticeable, but there is limited study on prevalence of neurocognitive impairment among traumatic brain injury survivor and particularly there is no published study in Ethiopia.

1.1.2. Statement of the Problem

The relationship between traumatic brain injury (TBI) and cognitive impairment has important public health implications. Traumatic brain injury is one of the conditions which is affecting older and younger individuals, and elevating risk of developing neurocognitive impairments (7).

Traumatic brain injury (TBI) is a prominent cause of death and disability worldwide, with variable continuing outcomes in survivors. The personal and societal costs are high, with the total global cost estimated to be $400 billion: 0.5% of the entire annual global output(8).

It has been estimated that around 5% of all major neurocognitive impairments cases worldwide may be attributable to TBI. Traumatic brain injury with loss of consciousness without chronic deficit, occurring more than 1-year prior, was related to a 1.3-fold increased risk for mild cognitive impairment(7).

Neurocognitive impairments are a main cause of disability and dependency among older people universaly, and it has a significant impact on individual's wellbeing and also on careers, families, communities and societies. Major Neurocognitive impairment (dementia) accounts for 11.9% of the years lived with disability (YLD) due to a non-communicable disease globally (9).

Major and mild neurocognitive impairments are main neurocognitive disorders which pose considerable public health challenges worldwide and associated with adverse outcomes including increased morbidity and mortality; persistent functional and cognitive decline and longer hospital stays (10).

An effective early diagnosis and treatment of neurocognitive impairments have been shown to make important differences to outcomes (11). Approximately > 40% of cases of MCI will revert to normal functioning however, it should be noted that the presence of MCI is a risk factor for later-life dementia, even if MCI symptoms revert to normal for a period of time (12).

In contrast to the above-mentioned outcomes the cognitive impairment remains a poorly understood condition and is frequently unrecognized by health care professionals. In general healthcare settings, up to 25% cases of major neurocognitive impairment undetected, and as high as 50% of mild cognitive impairment (MCI) undetected.

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This under-recognition, along with increasing evidence regarding cognitive impairment treatment, emphasizes the importance of understanding the factors that relate to accurate identification.

The risk factors for cognitive impairment are many and varied in several way, include vascular risk factors; hypertension, cardiovascular disease, cerebrovascular disease, congestive heart failure, and diabetes. Also excessive amphetamine and like substance use, alcohol consumption, and Smoking is considered to be a risk factor for the development of Alzheimer disease and vascular dementia(13)

As far as the investigators level of search and knowledge no published articles were available in the study setting as well as in Ethiopia. So there is a need to conduct studies on the assessment of neurocognitive impairment and associated factor among TBI survivor in surgery referral clinic (SRC), Jimma medical center, southwest, Ethiopia.

1.1.3. Significance of the study

It is well reported in the literature that cognitive impairment is common problem in general public health care setting and is also significant problem in the surgery referral clinic. Particularly person who had survived traumatic brain injury have increased risks of developing cognitive impairment.

in contrast to its high incidence and prevalence neurocognitive impairment appears to be unrecognized and left untreated both in developed and developing countries which even make it worrisome in low income countries(9). This may be due to complexity of the condition, physician awareness, detection rate and documentation. This study aims to assess the magnitude of cognitive impairment and associated factors among TBI survivor in the surgery referral clinic, which will in turn contribute for treatment outcome and early detection at the appropriate setting.

This study will hopefully be used as base line information for concerned health professionals, researchers, or health service providers. In addition, the findings may help the participants and other people with this condition to get appropriate care as early as possible and reducing risks for incidence of further complications of cognitive impairment.

CHAPTER 2: LITERATURE REVIEW

2.1. Overview about Neurocognitive impairment

Neurocognitive impairment is a syndrome caused by disease of the brain usually of a chronic or progressive nature in which there is disturbance of multiple higher cortical functions. Traumatic brain injury is one of the conditions which is affecting younger individuals, and elevating risk of developing major neurocognitive impairment. According to reviewed four studies which have been conducted among TBI survivors, the lifetime prevalence of cognitive impairment is in a range between 8.4 % and 65 %. The cognitive outcome post TBI is affected by numerous injury related factors like severity of brain injury and its subsequent complications, associated injuries to other body regions, past history of brain injury, comorbid acute or chronic medical illness, substance use and age of the individuals(13,14,23,15–22)

2.2 Prevalence of neurocognitive impairment

A study done in a California, in which retrospective cohort study was performed to assess dementia risk after traumatic brain injury. All patients 55 years or older diagnosed as having TBI (n = 164 661) were identified. Of these, 4361 (8.4%) developed dementia (24).

According to a study done in USA in 2013, on an exploration of clinical dementia phenotypes among individuals with and without traumatic brain injury, the prevalence of cognitive disorder was 11.2%, the study was done among 321 cases retrospectively. Using A tools Mini Mental State Examination, Wechsler Memory Scale-Revised, Wechsler Adult Intelligence Scale-Revised, Category Fluency Test, Trail Making Test, and Boston Naming Test to assess cognitive impairment(25).

A study conducted in India using a cross sectional study design among mild and moderate TBI patients who were admitted in department of Neurosurgery showed that the prevalence of cognitive impairment was 65% (16).

A study done in Uganda from November 2015 to April 2016, on Patients admitted at Mulago Hospital with head injury found the prevalence of neurocognitive impairment was 28.4%. The study was conducted on 171 adult using a prospective study design. The Cogstate computer-administered neuropsychological test battery was used to assess neurocognitive functioning(19).

2.3 Factors associated with neurocognitive impairment

2.3.1 Socio-demographic factors

A community cross-sectional study conducted in Finland found a strong association between young age and dementia among TBI patients and also a cohort study done in USA showed the same finding (26,27). Regarding the gender, one case control study done in Netherland found a strong association between dementia and male gender and also one systematic review supported this significant association (28,29).

In 2017 a cross-sectional study done in Iran by the title of Impacts of cognitive impairment for different levels and causes of traumatic brain injury, and education status in TBI revealed a strong association between no education neurocognitive performance and the Finland finding also revealed strong association between low educational status with dementia (27,30). Regarding the association between occupational status and neurocognitive impairment, one case control study which conducted in Italy found strong association between governmental employed and dementia (31).

2.3.2 Clinical factors

A study done in India and Uganda ,showed that patients severity of traumatic brain injury(identified by Glasgow coma scale), had significant association with cognitive impairment (32). A study done by the topic of head injury as a risk factor for Alzheimer's disease in Denmark revealed a significant association between one of neurocognitive impairment which is Alzheimer's disease and previous history of TBI (33). Other studies also supported this significant association (28,34).

By the title of Traumatic brain injury and risk of dementia in older veterans a retrospective cohort study was conducted among 188,764 of USA older veterans and found a significant association of mental illnesses (MDD and PTSD) and medical illnesses (hypertension, DM, myocardial infraction, renal disease, cerebrovascular disease..) with neurocognitive impairment (35).

2.3.3 Substance use

Among psychoactive substances alcohol use and tobacco use were the significantly associated factors with neurocognitive impairment on retrospectively done cohort study in California old veterans (35).

Figure 1 Conceptual frame work
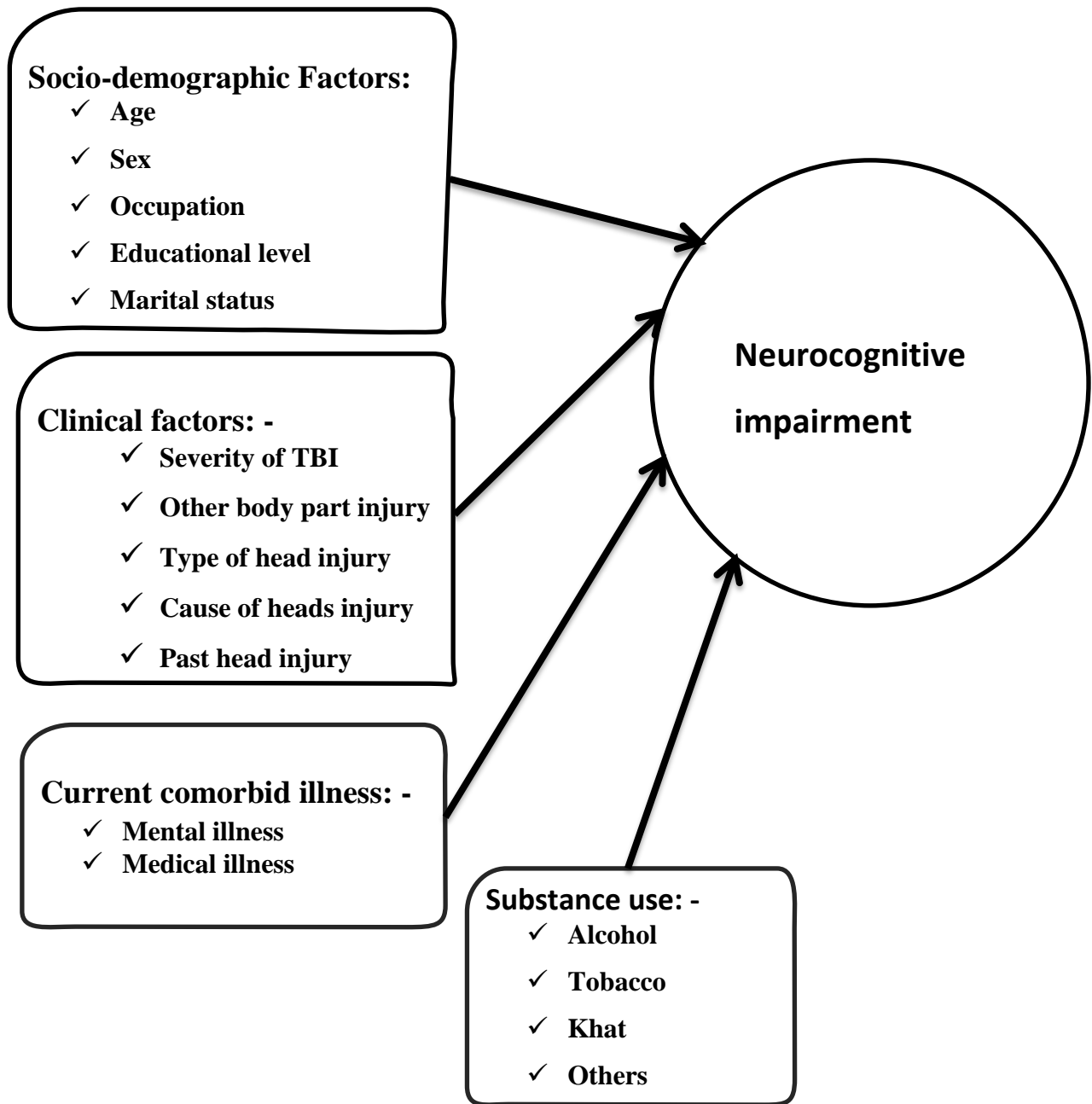
Figure 1: Conceptual frame of factors associated with cognitive impairment in TBI which developed after reviewing literature

CHAPTER 3: OBJECTIVE OF THE STUDY

3.1. General objective

❖ To assess the prevalence and associated factors of neurocognitive impairment among traumatic brain injury survivor following treatment in surgery referral clinic at Jimma medical center, Jimma, Southwest Ethiopia, 2021.

3.2. Specific objective

❖ To determine the prevalence of neurocognitive impairment among traumatic brain injury survivor in surgery referral clinic at Jimma medical center, Jimma, Southwest Ethiopia, 2021

❖ To identify factor associated with neurocognitive impairment among traumatic brain injury survivor in surgery referral clinic at Jimma medical center, Jimma, Southwest Ethiopia,2021

CHAPTER 4: METHODS AND MATERIALS

4.1. Study area and period

The study was conducted in Jimma medical center surgical referral clinic, from 01 august to 30 september 2021. Jimma medical center (JMC) is found in Jimma town, Oromia, regional state, southwest Ethiopia. Jimma town is 352km far from Addis Ababa,the capital city of Ethiopia. JMC is one of the oldest governmental hospitals established in 1937. JMC provides services for about 15 million populations in Southwest area. It provides service for approximately 15, 000 inpatients, 160, 000 outpatient attendants, and 11, 000 emergency cases annually. About 350 patients attend treatment for TBI in surgery referral clinic per 2 month, currently in this department there are 10 B.S.C nurses, 1 Specialist Doctors in neurosurgery and 1 orthopedics, 4 General practitioner doctors. Furthermore, in this department there are three allocations neurosurgery, orthopedics and urology.

4.2. Study design

Institutional based cross-sectional study design was employed

4.3. Population

4.3.1 Source Population

All patients attending treatment at Jimma medical center during the study period.

4.3.2 Study population

A sample of patients survived traumatic brain injury attending surgery referral clinic at Jimma medical center during the study period who fulfil the elgibiltiy criteria.

4.4. Inclusion and exclusion criteria

4.4.1. Inclusion Criteria

All Patients with traumatic brain injury attending surgery referral clinic at Jimma medical center, during the study period and age >18 year old

4.4.2. Exclusion criteria

Patient who were acutely ill during the data collection

Patient with difficulty to read and write because of deformed extremity, hearing and visual impairment

Patient with diagnosis of cardiovascular, cerebrovascular and neurological disease for more than one year

Patient with less than three month duration of illness(TBI)

4.5. Sample Size Estimation

The minimum sample size required for this study was calculated by using single population proportion formula by taking that, the neurocognitive impairment among patients with traumatic brain injury was 28.4% as study report from Uganda at Mulago Hospital(19), with 5% marginal of error (d) and 95% confidence interval (CI).

$$n = \frac{(Z_{\frac{\alpha}{2}})^2 p(1-P)}{d^2} = \frac{1.96^2 0.284 \times 0.716}{0.05^2} = 299.8$$

$$\approx 300$$

Where,

n= minimum sample size required for the study

Z= the reliability coefficient corresponding to 95% confidence level (Z=1.96)

P= proportion of neurocognitive impairment in patients with traumatic brain injury

d= Absolute precision or tolerable margin of error (d) =5%=0.05

Then by adding 10% of non-respondent, which = 30, the total sample size for this study was 300+ 30 = 330

4.6 Sampling technique and procedure

4.6.1 Sampling techniques

The average number of patients with traumatic brain injury who visit the follow up treatment at JUMC surgical referral clinic per eight weeks period of data collection was around 350. The sample size required for this study was 330. Consecutive sampling technique was used to select the sampling unit. Any traumatic brain injury patient who fulfills inclusion criteria was invited consecutively until intended sample size fulfilled.

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4.7. Study variables

4.7.1. Dependent Variables

Neurocognitive impairment

4.7.2. Independent Variables

Socio-demographic characteristics

- ✓ Age
- ✓ Sex
- ✓ Occupation
- ✓ Educational level
- ✓ Marital status
- ✓ Monthly income

Clinical Characteristics

Severity of TBI

Other body part injury

Type of head injury

Cause of heads injury

Current comorbid illness

- ➢ Mental illness
- ➢ Medical illness

Substance use: -

- ✓ Alcohol
- ✓ Tobacco
- ✓ Khat
- ✓ Other

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4.8 Data Collection Tools and procedures

4.8.1 Data collection tools

Neurocognitive impairment was assessed by using pre-tested mini mental state examination (MMSE). The MMSE Is 10-item interviewer administered questionnaire designed to evaluate the presence of neurocognitive impairment which is validated in many developed and developing country with (sensitivity=86%, specificity=83%) with cutoff score ≤23 was used to assess neurocognitive impairment(36). The reliability Cronbach's alpha of the current study was 0.902

Patient's medical history was reviewed from patient chart for clinical related factors and patient was asked for absence or presence of history of chronic medical and mental illness. Socio demographic related information was collected by structured questionnaire.

Alcohol, smoking and substance involvement screening test the ASSIST (Version 3.0)

It consists of eight items measuring lifetime (Question 1 rated "yes" = 1/"no" = 0; interview stops if "no") and recent (past 3 months; question 2: interview continues for each substance used in the past 3 months only).

4.8.2 Data collection procedure

The data was collected through face to face interview using structured and pre-tested interviewer administered questionnaires. Four data collectors and two supervisors were employed.Three BSc psychiatric nurse staffs and 1 BSc Clinical nurse conducted data collection for 8 weeks of data the collection periods with two mental health professional specialist supervisors. Study participants were identified by data collectors by reviewing patient medical chart. Then, data was collected from selected study participants

4.9. Data analysis procedures

The collected data was coded, edited, and entered into Epi data version 3.1 and exported to SPSS version 25.0 statistical software for analysis. Descriptive analysis like frequency distribution and cross tabulation was done. The dependent and independent variables was entered into a binary logistic regression, in order to explore each independent variable association with outcome variable. Finally multivariabe logistic regression was computed for some of independent variables taken from the bivariate analysis. In this study independent variables with p < 0.25 were selected as candidate for further analysis to identify factors independently associated with outcome variable in the final model.

Adjusted odd ratio (aOR) with 95% confidence interval was computed and Statistical significance was set at p-value of < 0.05 in the final multiple logistic regression models.

4.10. Data quality management

The questionnaire was prepared first in English and translated into Afaan Oromo and Amharic then back translated to English by another language expert of Jimma University who was blinded for English version to check clarity of questionnaire. Two days Training was given for data collectors and supervisor. Pre-test was conducted on 5% of the sample size at Shenen Gibe General Hospital surgical OPD to identify potential problems in data collection tools, to assess the reliability of assessment tool. The result of pretest implies good internal consistency MMSE (cronbach alpha 0.902) and some modification was done accordingly before actual data collection period. The supervisor and data collectors were trained for 2 days by the principal investigator before starting the data collection. Regular supervision and support was given for data collectors by the supervisor and principal investigator. Data was checked for completeness and consistency by supervisors and principal investigator on daily bases during data collection time.

4.11 Operational definitions

TBI survivors: Is a patient who survived injuries a disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head or a penetrating head injury.

Neurocognitive impairment due to TBI: In the DSM-5, cognitive impairment due to TBI is encompassed by the diagnoses of the expanded syndromes major NCD due to TBI, with and without behavioral disturbance, and mild NCD due to TBI(2).

Alcohol risk level: defined based on total ASSISTv3 score of individual in which Low alcohol risk if ASSISTv3 score 0-10 ,Moderate alcohol risk if   ASSISTSv3 score 11-26 and Severe alcohol risk if ASSISTv3 score >= 27 respectively.

Tobacco risk level: defined based on total ASSISTv3 score of individual in which Low tobacco risk if ASSISTv3 score 0-3 ,Moderate tobacco risk if   ASSISTSv3 score 4-26 and Severe tobacco risk if ASSISTv3 score >= 27 respectively

Chat risk level: defined based on total ASSISTv3 score of individual in which Low chat risk if ASSISTv3 score 0-3 ,Moderate chat risk if   ASSISTSv3 score 4-26 and Severe chat risk if ASSISTv3 score >= 27 respectively(37)

Cognitive impairment: patient who scored 23 and below on MMSE

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Mild cognitive impairment: A MMSE score of 20-23/30

Moderate cognitive impairment: A MMSE score of 10-19/30

Severe cognitive impairment: A MMSE SCORE of 0-9 /30.(36)

Glasgow coma scale: 13-15/15 score; indicate mild traumatic brain injury

9-12/15 score; indicate moderate traumatic brain injury

3-8 /15 score; indicate severe traumatic brain injury(2)

Current Comorbid medical and mental illness - any medical and mental illness diagnosed by physician which reviewed from patient chart or reported by the patient with in duration of not more than 1 year.

4.12. Ethical consideration

The ethical approval of the study was obtained from the Institution Review Board of Jimma University, Institute of health. Official letter was written to the hospital administration. Verbal consent was obtained from the study participants. Data collectors put their signature for they could obtain verbal consent for the interview from the respondents. Confidentiality of the information was assured and privacy of the respondents was maintained. The participant's right to refuse or to withdraw from the study at any stage of interview process was respected. The study participant right to ask any question about the study and to get answer was respected. Four traumatic brain injury patient with severe neurocognitve impairment has been link to psychiatric clinic for further evaluation and management

4.13. Dissemination plan

The finding of this study will be submitted to Jimma university institute of health faculty of medical science, department of psychiatry, and Jimma medical center. Findings of the study will be communicated to Jimma medical center community on presentation and also it will be submitted to other relevant stake holders through report and presentation. In addition, it will be published on peer reviewed journals of national international.

CHAPTER FIVE: RESULTS

5.1 Socio-demographic characteristics of the respondent

From the total of 326 patients actually responded for interview which yields a response rate of 98.7%. The mean age was 39.54 years (SD ±14.42). Nearly half of the respondents, 58.3% (n=190) were males. Out of the total study participants, 46.3% (n=151) were married and 5.8% (n=19) were divorced. Regarding the educational status, 42.6% (n=139) have attended their education up to secondary school level. 38.7% of the respondents were merchants and 2.8 were house wife. Majorities (63.2%) of the respondents have above average monthly income which was set by WHO (table1).

Table 1: Socio-demographic characteristics of patients with TBI attending follow up treatment at JUMC, surgery referral follow up clinic, 2021(N=326**)**

variables	Categories	Frequency(N=326)	Percentage (%)
Age	18- 39	195	59.6
	40-60	71	21.7
	>60	60	18.3
Sex	Male	190	58.3
	Female	136	41.7
Marital status	Married	151	46.3
	Divorced	19	5.8
	Widowed	25	7.7
	Single	131	40.2
Educational status	No formal education	69	21.2
	Primary education	53	16.3
	Secondary school	139	42.6
	College and above	65	19.9
occupational status	Farmer	23	7.1
	Merchant	126	38.7
	Daily labor	84	25.8
	Government employee	39	12.0
	Housewife	9	2.8
	Jobless	45	13.8
Monthly income	<2564	120	36.8
	>2565 birr	206	63.2

5.2 Clinical characteristics

The mean Glasgow coma scale (GCS) score was 12.33 with SD ± 3.22. Twenty-one point eight percent (n=71) of the respondent have low GCS score. The prevalence of co morbid chronic medical and history of mental illness among patients with TBI was 12.0% (n=39) and 21.1% (n=67) respectively. Out of the total study participants, 27.0% (n=88) have past history of head injury. Regarding the current TBI, 62.9% (n=205) of the respondents have blunt type head injury. Majority, 59.2% (n=193) of the study participants' traumatic brain injury was caused by motor vehicle accident, while 32.8% (n=107) and 8.0% (n=25) was caused by fall and fight respectively. Out of the total study participants, 53.7% (n=175) have other body part injury. The prevalence of alcohol, khat, and tobacco use among patients with TBI was 54.5% (n=178), 56.3 %(n=224), and 16.2 %(n=53) respectively. While, severe khat and alcohol risk level was 6.1 %(20) and 3.7 %(12) respectively (table 2)

Table 2: Clinical related characteristics of patients with TBI attending follow up treatment at JUMC, surgery referral follow up clinic, 2021(N=326)

variables	Categories	Frequencies	Percentages
Glasgow coma scale	High	193	59.2
	Moderate	62	19.0
	Low	71	21.8
Types of head injury	Blunt	205	62.9
	Penetrating	121	37.1
Cause of head injury	Motor vehicle accident	193	59.2
	Fall	107	32.8
	Fight	25	8.0
Other body injury	Upper extremities	134	41.1
	Lower extremities	147	45.1
	Trunk	27	8.3
	Thorax	17	5.2

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	Vertebral bone	5	1.5
Past head injury	Yes	88	27.0
	No	238	73.0
History of medical illness	Diabetes	23	7.1
	Hypertension	27	8.3
	Stroke	2	0.6
	Cardiac disease	8	2.5
	Renal disease	14	4.3
History of mental illness	Anxiety disorder	57	17.5
	Mood disorder	25	7.7
	psychotic disorder	5	1.5
Khat risk level	No	141	43.1
	Mild	101	30.9
	Moderate	63	19.3
	Severe	20	6.1
Tobacco risk level	No	271	82.9
	Mild	29	8.9
	Moderate	24	7.3
	Severe		
Alcohol risk level	No	146	44.6
	Mild	135	41.3
	Moderate	31	9.5
	Severe	12	3.7

5.3 Prevalence of neurocognitive impairment and associated factors in study participant

The prevalence of neurocognitive impairment among patients with TBI was 12.58% (figure1). Regarding neurocognitive impairment severity out of the total study participants 10(3.1%), 27(8.3%) and 4(1.2%) were found to have mild, moderate and severe neurocognitive impairment respectively (figure2)

Figure 2; Prevalence of neurocognitive impairment among traumatic brain injury patients attending follow up treatment at JUMC, 2021(N=326)
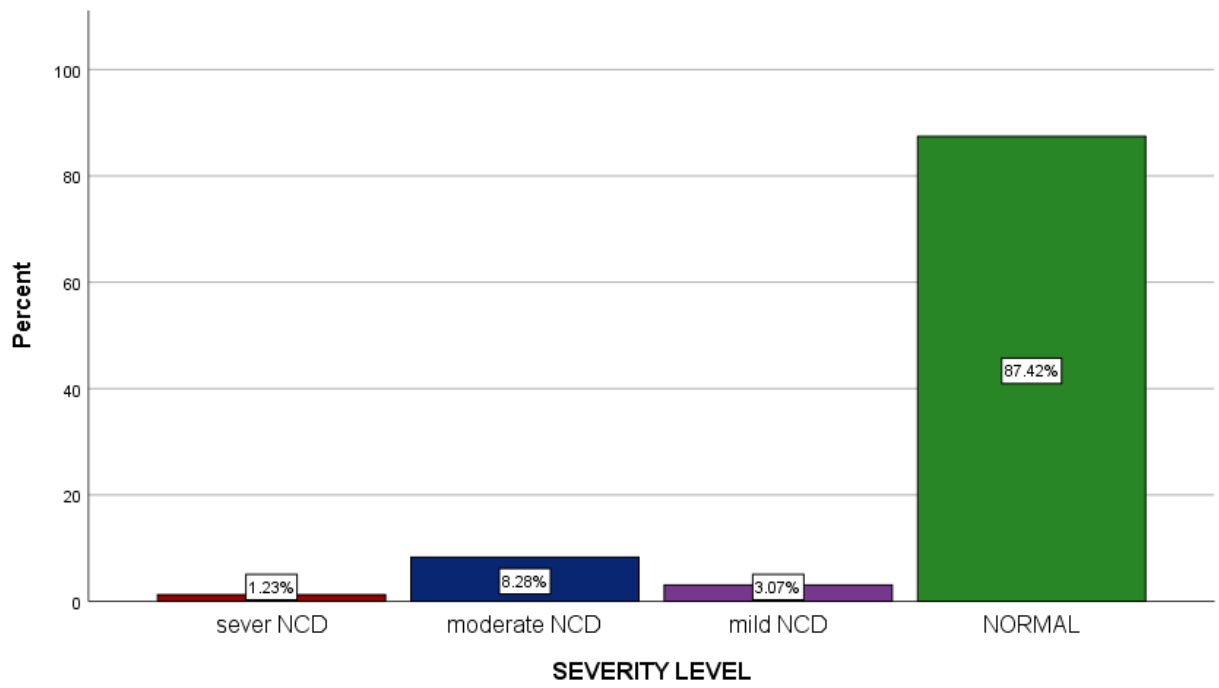
Figure 3 severity status of neurocognitive impairment among traumatic brain injury patients attending follow up treatment at JUMC, 2021(N=326)

5.5 Factors associated with neurocognitive impairment

In bivariable logistic regression analysis; being single, widowed, age older than 60 year, co-morbid chronic medical illnesses, history of mental illness, history of head injury, low Glasgow coma scale score, alcohol risk level and tobacco risk level were associated with neurocognitive impairment (table 4)

After adjusting for confounders using multivariable logistic regression, age older than 60 year (AOR=5.96.; 95% of CI: 1.83,19.36), history of mental illness (AOR=2.52.; 95% of CI: 1.045,6.09), history of comorbid medical illness (AOR=3.012.; 95% of CI: 1.02,8.88) low Glasgow coma scale score (AOR=6.99.; 95% of CI: 2.73,17.91), past history of head injury (AOR=4.817.; 95% of CI: 2.004,11.57),were associated with neurocognitive impairment (table 5).

The odds of having neurocognitive impairment among patients older than 60 year is 5.96 times higher as compared to patients with age between 18-39 and 40-60 year old(AOR=5.96.; 95% of CI: 1.83,19.36). The odds of having neurocognitive impairment among patients with low Glasgow coma scale score is 6.99 times (AOR=6.99.; 95% of CI: 2.73,17.91) higher as compared to those patients who had high Glasgow coma scale score.Patients who have past history of head injury are 4.817times more likely to have neurocognitive impairment (AOR=4.817.; 95% of CI: 2.004,11.57) compared to those who have no past history of head injury. Patients who have current comorbid mental illness are 2.52 times more likely to have neurocognitive impairment (AOR=2.52.; 95% of CI: 1.045,6.09) compared to those who have no current comorbid mental illness. . Patients who have current comorbid medical illness are 3.012 times more likely to have neurocognitive impairment (AOR=3.012.; 95% of CI: 1.02,8.88) compared to those who have no current comorbid medical illness. (Table5).

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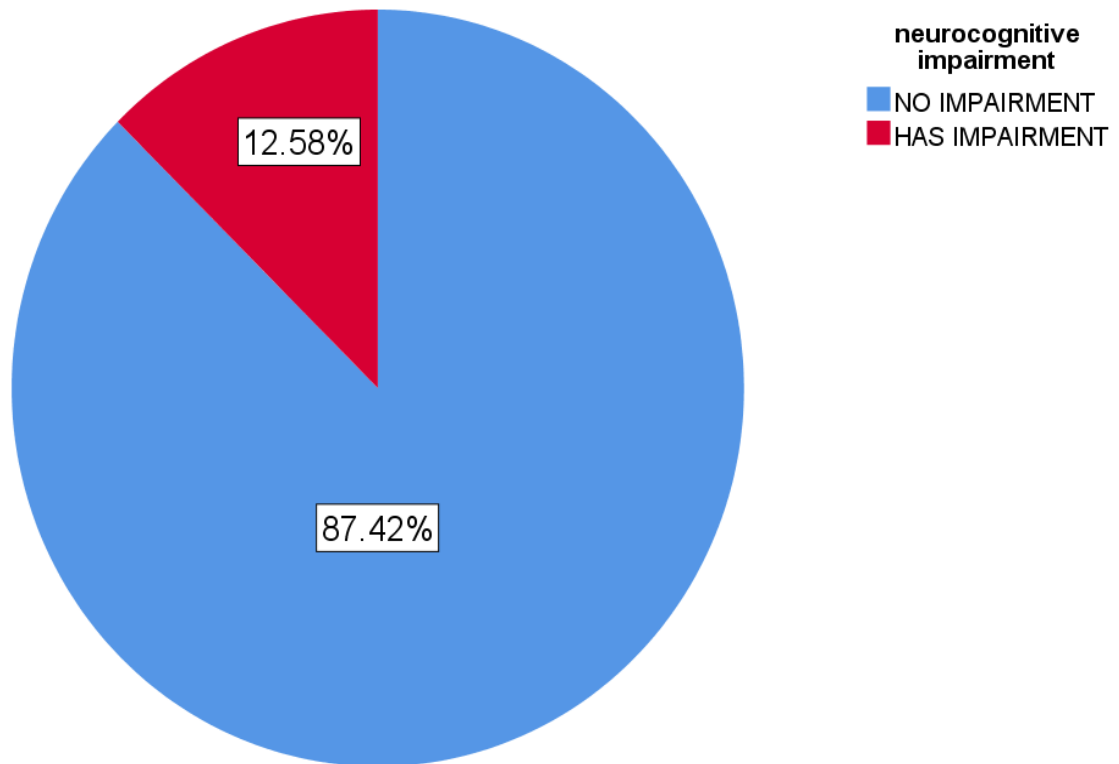**Table 3;** Factors associated with neurocognitive impairment on bi-variable and multivariable logistic regression analysis among patients with TBI attending follow up treatment at JUMC, surgery referral follow up clinic, 2021(N=326)

Variables	Categories	COR(95% CI)	P-Value	AOR(95% CI)	P-Value
Age	18-39	Reference		Reference	
	40-60	1.52(0.62,3.76)	0.362	2.30(0.67,7.89)	0.185
	>60	5.14(2.39,11.03)	**<001***	5.96(1.83,19.36)	**0.003****
Comorbid medical illness	Yes	4.62(2.13,10.0)	**<001***	3.012(1.02,8.88)	**0.046****
	No	Reference		Reference	
Comorbid of mental illness	Yes	3.59(1.80,7.13)	**<001***	2.52(1.045,6.09)	**0.040****
	No	Reference		Reference	
Previous head injury	Yes	3.41(1.74,6.68)	**<001***	4.817(2.004,11.57)	**<001****
	No	Reference		Reference	
Glasgow coma scale	Low	4.06(1.98,8.32)	**<001***	6.99(2.73,17.91)	**<001****
	Moderate	0.71(0.23,2.20)	0.559	0.615(0.157,2.42)	0.487
	High	Reference		Reference	
Sex	Male	0.72(0.37,1.39)	0.328		
	Female	Reference			
Marital status	Married	Reference			
	Single	0.54(0.24,1.20)	**0.132***		
	Widowed	2.54(0.94,6.86)	**0.065***		
	Divorced	1.74(0.52,5.79)	0.362		
Occupation	Farmer	Reference			
	Merchant	1.42(0.30,6.66)	0.658		
	House wife	5.25(0.71,39.03)	**0.105***		
	Government employer		0.998		
	Daily labor	2.47(0.52,11.63)	0.253		
	Jobless	1.31(0.23,7.35)	0.757		
Tobacco risk level	No	Reference			
	Mild	0.89(0.25,3.12)	0.860		
	Moderate	3.18(1.22,8.29)	**0.018***		
Alcohol risk level	No	Reference			
	Mild	1.016(0.48,2.14)	0.968		
	Moderate	1.95(0.69,5.46)	**0.204***		
	Severe	4.062(1.1,15.02)	**0.036***		

*Key: *= bi-variable significance at p-value<0.25; **Statistical significance at p-value<0.05; Hosmer and lemeshow test: 0.64.*

CHAPTER SIX: DISCUSSION

The prevalence of neurocognitive impairment in the current study was 12.58%. Low score on Glasgow coma scale, age older than 60 year, past history of head injury, history of comorbid medical illness, and history of mental illness was factors associated with neurocognitive impairment. The prevalence of neurocognitive impairment found in this study is in line with a study conducted in United State of America (11.2%)(38) and California (8.4%)(18).

The prevalence of neurocognitive impairment found in this study (12.58%) was lower than studies conducted in Uganda (28.4%) (21),India (65%)(32) and Canada (55.5%) (39). The possible reason for difference may be due to different neurocognitive impairment screening tool used. In study reported from Uganda neurocognitive impairment was screened with the cogstate computer-administered neuropsychological test battery. Montreal Cognitive Assessment (MoCA) score was used in study reported from India. While, in the current study adapted standard minimental status examination was used to screen neurocognitive impairment. Also difference in study population is another reason for discrepancy, in study done in Uganda, participants 5 years and older were involved. But in the current study age below 18 years old were not involved.

Being Age older than 60 years was nearly 6 times more likely to develop neurocognitive impairment than being younger than 60 years. This finding is supported with report from Pennsylvania(40).This might be because of ageing leads to neurodegenerative condition which has an impacts on cognitive functioning like; decline in executive functioning, immediate and remote memory impairment. Though changes in cognition with normal aging, the incidence of traumatic brain injury trigger and accelerate the neurodegenerative cascade and decrease cognitive reserve and as consequence it increases chances developing cognitive impairment(2,24,35,39,41–45).

In this study, the odds of having neurocognitive impairment among patients with low Glasgow coma scale score was nearly 7 times higher as compared to those patients with high Glasgow coma scale score. This finding is consistent with the previous study done in California(18). This may be due to the fact that decrement in GCS score due to traumatic brain injury may indicates that anatomical and physiological change on the brain which in turn affect multiple neurochemicals which play vital role in development of neurocognitive impairment(2,30,38).

Having mental illness increases the odds of neurocognitive impairment among patients with traumatic brain injury by nearly 2.5 times than those without mental illness. This finding is supported with previous study report. This may be due to biological effects of the psychiatric disorder like structural and functional change in brain activity which have direct negative impacts on cognition and also effects of psychotropic medication may have an impact on cognition(2,46,47) . Also risky behaviors of an individual with psychiatric disorder may increase risk of having severe traumatic brain injury which could play substantial role to cause neurocognitive impairment(13,48–52).

Patients who have past history of brain injury were 5 times more likely to have neurocognitive impairment compared to those who have no past history of brain injury. This finding is supported with study reported from USA(53).This may be due to the head trauma may induce changes in the blood-brain barrier, which may lead to Alzheimer's disease. On the other hand, it is conceivable that head trauma may cause rupture of brain vessels, which are already weakened by amyloid deposits and Alternatively, TBI may initiate a neuropathology process that more directly leads to dementia(2,54).

Having comorbid medical illness increases the odds of neurocognitive impairment among patients with traumatic brain injury by 3 times than those without medical illness. This finding is supported with previous study(55,56).This might be due to the effects of different medical illness causing physiological changes on neuronal and accumulation of free radical formation those lead to oxidative stress and enhance cognitive impairment(2).

Strength and Limitation of the Study

Limitation of the study

Patients chart were reviewed for current comorbid medical, surgical and mental illness.

Neuro-imaging were not used to confirm the severity of brain injury.

CHAPTER 7: CONCLUSION AND RECOMMENDATION

7.1 Conclusion:

A relatively low prevalence(12.58) of neurocognitive impairmrnt among patients with traumatic brain injury was found in this study. The age group older than 60 year, having comorbid medical and mental illness, having low Glasgow coma scale score ,having past history of head injury were variables become significantly associated with neurocognitive impairment. Even if the finding of this study indicated that relatively low prevalence of neurocognitive impairment in patients with traumatic brain injury ,but It is good alarm to be alert to give attention on routine screening of neurocognitive impairment in patients with traumatic brain injury and to give special concern for patients with above stated factors.

7.2 Recommendations

To Jimma University Medical center surgery referral follow up clinic:

It is better if there is strong referral linkage with psychiatry clinic for further evaluation and Intervention of traumatic brain injury patients with suspected for neurocognitive impairment.

It is better if health education is given for patients older than 60 year old with traumatic brain injury to have follow-up of wellbeing's at surgery referral follow up clinic at least 2-4 times per year for further evaluation of neurocognitive status

Health education program regarding substance use should be given for patients with traumatic brain injury

It is better if patients with traumatic brain injury who have comorbid mental illness treated early

To Jimma University Medical Center:

Training programs should be arranged for all health care providers working in surgery referral follow up clinic, about neurocognitive impairment and how to screen with collaboration of ministry of health.

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Training programs should be arranged for all health care providers working in surgery referral follow up clinic, about traumatic brain injury and proper screen with collaboration of ministry of health.

To department of psychiatry

Psychiatry liaison service should be arranged in JUMC surgery referral follow up clinic

To ministry of health

It is better if neurocognitive impairment screening tools will prepared and distributed for health care institution at all level.

It is better if training will be given for health care professional on how to use the provided screening tool of neurocognitive impairment and traumatic brain injury

To researchers:

It is better if longitudinal study was conducted to establish cause and effects relationship by using neurocognitive impairment diagnostic tool like; neuro-imaging

Reference:

1.   American Psychiatric Association: Diagnostic and Statisti? cal Manual of Mental Disorders, Fifth Edition. Arlington, VA APA tion. DSM-5. 2013. 591-643 p.

2.   Benjamin J. Sadock MD, Psychiatry MSGP of, Department of Psychiatry NYUS of M, Attending Psychiatrist TH, Attending Psychiatrist BHC, New York NY, et al. Kaplan_and_Sadock's_Comprehensive. 2017. 3040-3218 p.

3.   Shah SA, Brigham P, Pataki DCS, Sciences B, California S, Psychiatry A, et al. KAPLAN & SADOCK'S SYNOPSIS OF PSYCHIATRY TWELFTH EDITION. 777 p.

4.   Barbay M, Taillia H, Nédélec-ciceri C. National Institute of Neurological Disorders and. 2018;1141–7.

5.   Behaviour A, Health M. Tutorial Letter 503 / 3 / 2018 Abnormal Behaviour and Mental Health. 2018;1–77.

6.   Mehrolhassani N, Movahedi M, Nazemi-rafi M, Mirafzal A. Persistence of post-concussion symptoms in patients with mild traumatic brain injury and no psychiatric history in the emergency department. 2020;

7.   Maas AIR, Menon DK, Adelson PD, Andelic N, Bell MJ, Belli A, et al. Traumatic brain injury – integrated approaches to improving clinical care and research. google Sch. 2017;

8.   Graham NSN, Sharp DJ. Understanding neurodegeneration after traumatic brain injury : from mechanisms to clinical trials in dementia. 2019;1221–33.

9.   Guidelines WHO. Risk reduction of cognitive decline and dementia. 2019. 1-2 p.

10. Paddick S, Kisoli A, Sc M, Samuel M, Higginson J, Gray WK, et al. Mild Cognitive Impairment in Rural Tanzania : Prevalence , Pro fi le , and Outcomes at 4-Year Follow-up. Am J Geriatr Psychiatry [Internet]. Elsevier Inc; 2015;1–10. Available from: http://dx.doi.org/10.1016/j.jagp.2014.12.005

11. Smailagic N, Vacante M, Hyde C, Martin S, Ukoumunne O, Sachpekidis C. F-FDG PET for the early diagnosis of Alzheimer ' s disease dementia and other dementias in people with mild cognitive impairment (MCI) (Review). 2015;(1).

12. Larrieu S, Letenneur L, Orgogozo JM, Fabrigoule C, Amieva H. Incidence and outcome of mild cognitive impairment in a population-based. 2002;

13. Toledo-fernández A, Marín-navarrete R, Villalobos-gallegos L, Salvador-cruz J. Exploring the prevalence of substance-induced neurocognitive disorder among polysubstance users , adding

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subjective and objective evidence of cognitive impairment. Psychiatry Res [Internet]. Elsevier Ireland Ltd; 2020;288(May 2019):112944. Available from: https://doi.org/10.1016/j.psychres.2020.112944

14. Commentary SI. Heavy Smoking in Midlife and Long-term Risk of Alzheimer Disease and Vascular Dementia. google Sch. 2011;171(4):333–9.

15. Postolache TT, Wadhawan A, Can A, Lowry CA. Inflammation in Traumatic Brain Injury. google Sch. 2020;74:1–28.

16. Mishra K, Purohit D, Sharma S. Montreal cognitive Assessment Score : A Screening Tool for Cognitive Function in Traumatic Brain Injury (TBI) Population. 2020;5:35–9.

17. Body Mass Index, Other Cardiovascular Risk Factors, and Hospitalization for Dementia _ Enhanced Reader.

18. Gardner RC, Burke JF, Nettiksimmons J, Kaup A, Barnes DE, Yaffe K. Dementia Risk After Traumatic Brain Injury vs Nonbrain Trauma The Role of Age and Severity. 2014;71(12):1490–7.

19. Bangirana P, Giordani B, Kobusingye O, Murungyi L, Mock C, John CC, et al. Patterns of traumatic brain injury and six-month neuropsychological outcomes in Uganda. google Sch. BMC Neurology; 2019;1–7.

20. Brien HO, Mohan ÃH, Hare CO, John Ã, Reynolds V, Kenny RA, et al. Mind Over Matter ? The Hidden Epidemic of Cognitive Dysfunction in the Older Surgical Patient. google Sch. 2017;265(4).

21. Gussekloo J. TYPE 2 DIABETES AND COGNITION Neuropsychological sequelae of vascular risk factors in the ageing brain. 2006.

22. Toledo-Fernández A, Marín-Navarrete R, Villalobos-Gallegos L, Salvador-Cruz J, Benjet C, Roncero C. Exploring the prevalence of substance-induced neurocognitive disorder among polysubstance users, adding subjective and objective evidence of cognitive impairment. Psychiatry Res. Elsevier Ireland Ltd; 2020 Jun 1;288:112944.

23. Akande TO, Adeleye JO, Kadiri S. Undiagnosed diabetes and prediabetes in hypertensive and normotensive adults at the university college hospital, Ibadan, Nigeria. Vol. 42, African journal of medicine and medical sciences. 2013. p. 309–15.

24. Kaup A, Barnes DE, Yaffe K. Dementia risk after brain versus non-brain trauma: the role of age and severity. google Sch. 2015;71(12):75–84.

25.   Manuscript A. NIH Public Access. 2013;32(2):199–209.

26.   Gardner RC, Burke JF, Nettiksimmons J, Kaup A, Barnes DE, Yaffe K. Dementia risk after brain versus non-brain trauma: the role of age and severity. JAMA Neurol. 2014;71(12):1490–7.

27.   Luukinen H, Viramo P, Herala M, Kervinen K, Kesäniemi YA, Savola O, et al. Fall-related brain injuries and the risk of dementia in elderly people: A population-based study. Eur J Neurol. 2005;12(2):86–92.

28.   Chandra V, Kokmen E, Schoenberg BS, Beard CM. Head trauma with loss of consciousness as a risk factor for Alzheimer's disease. Neurology. 1989;39(12):1576–8.

29.   Li Y, Li Y, Li X, Zhang S, Zhao J, Zhu X, et al. Head injury as a risk factor for dementia and Alzheimer's disease: A systematic review and meta-analysis of 32 observational studies. PLoS One. 2017;12(1).

30.   Article O. Levels and Causes of Traumatic Brain Injury. 2018;12(4):415–20.

31.   ابن سینا. No Title طب در قانون. 1386;283.

32.   Panwar N, Purohit D, Sinha VD, Joshi M. Evaluation of extent and pattern of neurocognitive functions in mild and moderate traumatic brain injury patients by using Montreal Cognitive Assessment (MoCA) score as a screening tool : An observational study from India. Asian J Psychiatr. Elsevier; 2019;41(June 2018):60–5.

33.   Fleminger S, Oliver DL, Lovestone S, Giora A. Fleminger 2003. 2003;857–62.

34.   Nordström A, Nordström P. Traumatic brain injury and the risk of dementia diagnosis: A nationwide cohort study. PLoS Med. 2018;15(1):1–13.

35.   Barnes DE, Kaup A, Kirby KA. Traumatic brain injury and risk of dementia in older veterans. 2014;

36.   Kochhann R, Varela JS, Saraiva C, Lisboa DM. The Mini Mental State Examination Review of cutoff points adjusted for schooling in a large Southern Brazilian sample. google Sch pubmed. 2010;4(1):35–41.

37.   World Health Organization: Validation of the Alcohol , Smoking and Substance Involvement Screening Test (ASSIST) and Pilot Brief Intervention : 2006;

38.   Connor KD, Spielman L, Hammond FM, Sayed N, Culver C, Diaz-arrastia R. An exploration of clinical dementia phenotypes among individuals with and without traumatic brain injury. 2013;32:199–209.

39.   Julien J, Joubert S, Ferland M, Frenette LC, Boudreau-duhaime MM. ScienceDirect Association

of traumatic brain injury and Alzheimer disease onset : A systematic review. 2017;

40. Injury TB, Johnson VE, Stewart W. Traumatic brain injury: Age at injury influences dementia risk after TBI. Nat Publ Gr [Internet]. Nature Publishing Group; 2014;65(2013):2013–4. Available from: http://dx.doi.org/10.1038/nrneurol.2014.241

41. Luukinen H, Viramo P, Koski K. Head injuries and cognitive decline among older adults A population-based study. 1999;

42. Ottman IIR, Tang M, Noboa-bauza L. Genetic Susceptibility and Head Injury as h s k Factors for Alzheimer ' s Disease- Among Community-dwelling Elderly Persons and their First-degree Relatives. 1993;

43. Rasmusson DX, Brandt J, Martin DB, Folstein MF. Head injury as a risk factor in Alzheimer ' s disease. 2016;9052(February).

44. Sachs-ericsson N, Blazer DG. Aging & Mental Health The new DSM-5 diagnosis of mild neurocognitive disorder and its relation to research in mild cognitive impairment. 2014;(January 2015):37–41.

45. LoBue C, Munro Cullum C, Didehbani N, Yeatman K, Jones B, Kraut MA, et al. Neurodegenerative dementias after traumatic brain injury. J Neuropsychiatry Clin Neurosci. 2018;30(1):7–13.

46. Rogers JM, Read CA. Psychiatric comorbidity following traumatic brain injury. 2007;21(December):1321–33.

47. Sayed N, Culver C, Connor KD, Hammond F, Diaz-arrastia R. Clinical Phenotype of Dementia after Traumatic Brain Injury. 2013;1122:1117–22.

48. Bjork JM, Grant SJ. Does Traumatic Brain Injury Increase Risk for Substance Abuse ? 2009;1082(July):1077–82.

49. Olson-madden JH, Brenner LA, Corrigan JD, Emrick CD, Britton PC. Substance Use and Mild Traumatic Brain Injury Risk Reduction and Prevention : A Novel Model for Treatment. 2012;2012.

50. Weil ZM, Corrigan JD, Karelina K. Alcohol Use Disorder and Traumatic Brain Injury. :171–80.

51. Pervez M, Kitagawa RS. Definition of Traumatic Brain Injury, Neurosurgery, Trauma Orthopedics, Neuroimaging, Psychology, and Psychiatry in Mild Traumatic Brain Injury. Neuroimaging Clin NA. Elsevier Inc; 2018;28(1):1–13.

52. Osvaldo P. Almeida, MD, PhD F, Graeme J. Hankey, MBBS, MD, FRACP F, Bu B. Yeap,

MBBS, PhD F, Jonathan Golledge, MA, MB, BChir, MChir, FRCS F, Leon Flicker, MBBS, PhD F. Prevalence, associated factors, mood and cognitive outcomes of traumatic brain injury in later life: The Health In Men Study (HIMS). :1–21.

53. Duijn CM Van, Tanja TA, Haaxma R, Schulte W, Saan RJ. Head Trauma and the Risk of Alzheimer ' s Disease. Am J Epidemiol. 2018;135(7):775–82.

54. Guidelines WHO. Risk reduction of cognitive decline and dementia.

55. Bangirana P, Opoka RO, Boivin MJ, Idro R, Hodges JS, Romero RA, et al. Severe malarial anemia is associated with longterm neurocognitive impairment. Clin Infect Dis. 2014;59(3):336–44.

56. Bajaj JS, Wade JB, Sanyal AJ. Spectrum of neurocognitive impairment in cirrhosis: Implications for the assessment of hepatic encephalopathy. Hepatology. 2009;50(6):2014–21.

ANNEXES

Annex I : English version questionnaire

Information sheet and Consent Form

Dear sir /Madam

My name is Arif Mohammedawol I am currently studying in Jimma University, faculty of health science and undertaking a master's degree (MSc) in integrated community and clinical mental health. You are invited to participate in the study. This study asses the magnitude and associated factors of delirium in Jimma University Medical Center, psychiatric clinic.

a. Duration: the duration of this study deepened on the availability of study subject's 1-2months.

b. Procedure to be carried out: the procedure is easy and simple; you will be asked few questions

c. Expected benefits: The information gained from you and other study participants will help to consider detection and adequate treatment of neurocognitive impairment.

d. Confidentiality: we respect your privacy and confidentiality. Any information that identifies you will not be shared with anyone else outside the study team. If a research article or publication comes from this study, you will not be identified by name. The information we collect from you as part of the study will be kept in locked file cabinet, or be protected by a password on the computer only accessible to personnel involved in the study.

e. Voluntary participation and withdrawal from the study: The participation is completely voluntary and you have the right not to participate in the study. You can stop participating in study at any time after giving your consent. This decision will not affect in any way yours current or future medical care in the health facility.

Contact information: if you have any question about the study, you can contact the investigator

       Arif Mohammedawol: +251927871917

email; arifopsy@gmail.com

Thank you for your assistance.

I_____ have been requested to participate in this study which involves answering questions. The purpose of this study has been explained for me. I have also read the information sheet (or it has been read to me); I have asked some questions and clarification has been given to me. I have given my consent on behalf of myself to participate in study and I hereby confirm my agreement with my signature.

Signature _____ Date_____

Name and signature of data collector_____ Date_____

Name and signature of supervisor_____ Date_____

Thank you for your participation in this important study

Part I: - Socio demographic Characteristics

Instruction: Here below are socio demographic factors, encircle the numbers below in the table

s/n	Socio demographic factors		Remarks
SD.101	Age	_____	
SD.102	Sex	1. Male 2.Female	
SD.103	Marital status	1. Married 2. Single 3. Widow 4. Divorced	
SD.104	Educational status	1. Primary 2. Secondary 3. Preparatory 4. College and above 5. No formal education	
SD.106	Religion	1.muslim 2orthodox 3.protestant 4.catholic 5.other(specify)	
SD.107	Occupational status	1.farmer 2.merchant 3.house wife 4.civil servant 5.private employee 6. other (specify)	
SD.108	How much is your monthly income		

Part II: Standardized mini-mental state examination for cognitive assessment (write the score)

s/no	Types of questions	Score
MM.201	What **year** is this?	--/1
MM.202	What **season** is this?	_/1
MM.203	What **date** is this?	_/1
MM.204	What **day** is this?	_/1
MM.205	What **month** is this?	_/1
MM.206	What **country** are we in	_/1
MM.207	What **region** are we in	_/1
MM.208	What **town** are we in?	_/1
MM.209	What is the name of this **hospita**l?	_/1
MM.210	What **floor of the building** are we on?	_/1
MM.211	I am going to name three objects. When I have finished, I want you to repeat them. Remember what they are because I am going to ask you to name them again later : **Bag / key/ arm**[score out of three]	__/3
MM.212	Please count from 5 backwards (5,4,3,2,1)	__/5
MM.213	What were the three objects I asked you to remember? (score one point for each correct answer regardless of order)	__/3
MM.214	Name pencil and **watch**	__/2
MM.215	I would like you to repeat a phrase after me: **No ifs, ands or buts**?	_/1
MM.216	Read this and then do what it says. Then, hands the person the sheet with **CLOSE YOUR EYES** on it. If the participant just reads and does not close eyes, you may repeat to a maximum of three times.	_/1

	Score one point only if the subject closes eyes		
MM.217	Hand the person a pencil and paper Say: Write any complete sentence on that piece of paper The sentence must make sense. Ignore spelling errors.		_/1
MM.218	Place design, eraser and pencil in front of the person. Say: Copy this design please. Allow multiple tries. Wait until the person is finished and hands it back. Score one point for a correctly copied diagram. The person must have drawn a four-sided figure between two five-sided figures		_/1
MM.219	Ask the person if he is right or left handed. Take this paper in your right/left hand (whichever is non-dominant), fold the paper in half once with both hands and put the paper down on the floor.	Take paper in correct hand	_/1
		Fold it in half	_/1
		Put it on floor	_/1
TOTTALSCORE			_/30

Part III: - Clinical factor questionnaires: see chart of the patient

Past medical History			
PM.301	Do you have any chronic medical illness?	1.yes 2.no	
PM.302	If yes for the question No 301 which one of the is your diagnosis	1.diabete 2.hypertention 3.stroke 4.other specify	
mental illness history			
PM.303	Have you ever been diagnosed for any psychiatric disorders?	1.yes 2.no	
PM.304	If yes for the question No 303 which one of the following is your diagnosis	1. major depression 2. schizophrenia 3. bipolar	

		4. anxiety 5. PTSD 6. other specify	
PM.305	Have you had previous brain injury requiring hospitalization	1.yes 2.no	
PM.306	If yes for the question No 113 for how long you lost your consciousness	1. <30 minutes 2. >30 minutes 3. other specify	
PM.307	Previous Hearing impairment	1.yes 2.no	
PM.308	Previous Vision impairment	1.yes 2.no	
Traumatic brain injury			
PM.309	Glasgow coma scale	1. 13-15 2. 9-12 3. 3-8	
PM.310	Types of head injury	1. Blunt 2. Penetrating	
PM.311	causes of head injury	1. Motor vehicles accident 2. Fall 3. Sport 4. Fighting 5. Other specify	
Other body part injury			
PM.312	Other body part injury	1. Yes 2. No	
PM.313	If yes for the question No 312 specify it which one of the following	1. lower extremities 2. upper extremities 3. vertebral bone and spinal cord 4. other specify	

Part iv: - Substance- use related questionnaire (ASSIST v3.0)

AS1	In your life, which of the following substances have you ever used?(*non-medical use only*)				**yes**	**No**
	Alcohol(arake, tella, beer, wine, spirits)				3	0
	Tobacco(cigarettes, chewing tobacco, cigars, etc)				3	0
	Chat				3	0
	Cannabis(marijuana, pot, grass, hash,etc				3	0
	Other –specify				3	0
If answer is no for question **AS1** skip the next question **and go to section VIII**						
AS2	If yes for question AS1 In the past 3 months how often do you use the substance you mentioned?	Never	Once/twice	monthly	weekly	Daily/almost daily
	Alcohol	0	2	3	4	6
	Cigarette	0	2	3	4	6
	Chat	0	2	3	4	6
	Cannabis	0	2	3	4	6
	Other –specify	0	2	3	4	6
AS3	Q3. The past three months how often have you had a strong desire or urge to use (first drug, second drug, etc)?	Never	Once/twice	monthly	weekly	Daily/almost daily
	Alcohol	0	2	3	5	6
	Cigarette	0	2	3	5	6
	Chat	0	2	3	5	6
	Cannabis	0	2	3	5	6
	Other –specify	0	2	3	5	6

AS4	During the past three months, how often has your use of (FIRST DRUG, SECOND DRUG, ETC) led you to health, social, legal or financial problems?	Never	Once/twice	monthly	weekly	Daily/almost daily
	Alcohol	0	4	5	6	7
	Cigarette	0	4	5	6	7
	Chat	0	4	5	6	7
	Cannabis	0	4	5	6	7
	Other –specify	0	4	5	6	7

AS5	During the past three months, how often have you failed to do what was normally expected of you because of your use of (FIRST DRUG, SECOND DRUG, ETC)?	never	Once/twice	monthly	weekly	Daily/almost daily
	Alcohol	0	5	6	7	8
	Cigarette	0	5	6	7	8
	Chat	0	5	6	7	8
	Cannabis	0	5	6	7	8
	Other –specify	0	5	6	7	8
AS6	Has a friend or relative or anyone else ever expressed concern about your use of (FIRST DRUG, SECOND DRUG, ETC.)?	never	Yes in the past 3 months	Yes but not in the past 3 months		
	Alcohol	0	6	3		
	Cigarette	0	6	3		
	Chat	0	6	3		
	Cannabis	0	6	3		
	Other –specify	0	6	3		
AS7	Q7. Have you ever tried and failed to control, cut down or stop using (FIRST DRUG, SECOND DRUG, ETC.)?	Never	Yes in the past 3 months	Yes but not in the past 3 months		
	Alcohol	0	6	3		
	Cigarette	0	6	3		
	Chat	0	6	3		
	Cannabis	0	6	3		
	Other –specify	0	6	3		

*Key: optional response for AS2-AS5 questions **Never:** not used in the last 3 months **Once or twice**: 1 to 2 times in the last 3 months. **Monthly:** 1 to 3 times in one month. **Weekly:** 1 to 4 times per week. **Daily or almost daily**: 5 to 7 days per week.*

Annex II: Amharic Version Information sheet

በጅማ ዩኒቨርስሲቲ የጤና ሳይንስ ኮሌጅ
የአዕምሮ ህክምና ትምህርት ክፍል
መጠይቅ ለመሳተፍ የፍቃደኝነት ቃል መቀበያ ቅፅ እና መጠይቆች

ስሜ አሪፍ ሞሃመድአዋል እባላለው በአሁኑ ጊዜ በጅማ ዩኒቨርሲቲ ውስጥ የጤ ና ሳይንስ ፋኩልቲ የአዕምሮ ህክምና ትምህርት ክፍል በተቀናጀ ማህበረሰብ እና የክሊኒክ የአእምሮ ጤና ላይ የሁለተኛ ዲግሪ ትምህርት መከታተል ላይ እገኛለው. በጥናቱ እንዲሳተፉ ተጋብ ዘዋል ። ይህ ጥናት በጅማ ዩኒቨርስቲ ሜዲካል ሴንተር ፤ በሰረጀሪ ሪፈራል ክሊኒክ ውስጥ የመገዘብ ስህተት መጠን እና ተጓዳኝ ምክንያቶች የጠና ።

a. የቆይታ ጊዜ: - የዚህ ጥናት ቆይታ በጥናቱ ርዕሰ-ጉዳይ 1-2 ወር ነው

b. የሚከናወነው አሰራር ቀላል ነው; ጥቂት ጥያቄዎች ይጠየቃሉ

c. የሚጠበቁ ጥቅሞች-ከእርስዎ እና ከሌሎች የጥናት ተሳታፊዎች የተገኘው መረጃ የመገናዘብ ስህተት መመርመርን እና በቁ ህክምናን ከግምት ውስጥ ያስገባል ።

d. ሚስጥራዊነት-የእርስዎን ግላዊነት እና ሚስጥራዊ እናከብራለን ። እርስዎን የሚለይ ማንኛውም መረጃ ከጥናቱ ቡድን ውጭ ለሌላ ሰው አይጋራም ፤ አንድ የጥናት ጽሑፍ ወይም ህትመት ከዚህ ጥናት የመጣ ከሆነ በስም አይታወቁም ። እንደ ጥናቱ አካል ከእርስዎ የምንሰበስበው መረጃ በተቆለፈ ፋይል ካቢኔ ውስጥ ይቀመጣል ፣ ወይም በጥናቱ ውስጥ ላሉት ሠራተኞች ብቻ በሚደረስበት ኮምፒተር ላይ በይለፍ ቃል ይጠበቃል ።

e. ከበጎ ፈቃደኝነት ተሳትፎ እና ከጥናቱ መላቀቅ-ተሳትፎው ሙሉ በሙሉ በፈቃደኝነት የሚገኝ ሲሆን በጥናቱ ውስጥ ላለመሳተፍ መብት አለዎት ። ስምምነትዎን ከሰጡ በኋላ በማንኛውም ጊዜ በጥናቱ መሳተፉን ማቆም ይችላሉ ። ይህ ውሳኔ በጤና ተቋሙ ውስጥ የአሁኑን ወይም የወደፊቱን የህክምና እንክብካቤ በምንም መንገድ አይነካም ።

የእውቂያ መረጃ-ስለ ጥናቱ ማንኛውም ጥያቄ ካለዎት መርማሪውን ማነጋገር ይችላሉ ።

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ኢሜል; arifopsy@gmail.com

ስለ እርዳታዎ እናመሰግናለን ።

ስምምነት:- በዚህ የምርምር ውስጥ ለመሳተፍ እስማማለሁ
አዎ___   አይደለም___
ይህንን መረጃ ተረድቻለው ከዚህም መረጃ 1ኮፒ ይሰጠኛል
የተሳታፊ ፊርማ_____   ቀን_____
የሱፐርቫይዘር ስምና ፊርማ_____   ቀን_____
የመረጃ ሰብሳቢ ስምና ፊርማ_____   ቀን_____
በዚህ አስፈላጊ ጥናት ውስጥ ስለመሳተፍ አመሰግናለሁ

ክፍል አንድ- የስነ-ህዝብ ባህሪዎች
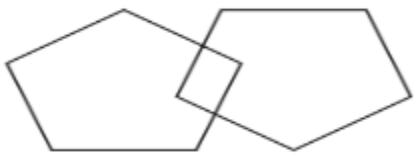
መመሪያ- እነዚህ በታች ማህበራዊ ሥነ-ህዝብ ናቸው ፤ በሠንጠረዝ ውስጥ ከዚህ በታች ያሉትን ቁጥሮች ያስገቡ

ተ.ቁ	ሶሺዮ የስነሕዝብ ምክንያቶች		አስተያየቶች
SD 101	ዕድሜ		
SD 102	ፆታ	1. ወንድ 2. ሴት	
SD 103	የጋብቻ ሁኔታ	1. ያገባ 2. ነጠላ 3. ባል/ሚስት የሞቴ 4. የተፋታች	
SD.104	የትምህርት ሁኔታ	1. የመጀመሪያ ደረጃ 2. ሁለተኛ ደረጃ 3. መሰናዶ 4. ኮሌጅ እና ከዚያ በላይ 5. መደበኛ ትምህርት የለም	
SD.105	የሥራ ሁኔታ	1. ገበሬ 2. ነጋዴ 3. የቤት አመቤት 4. የመንግስት ሰራተኛ 5. የግል ሰራተኛ 6. ሌሎች (ይግለጹ)	
SD.106	ወርሃዊ ገቢዎ ስንት ነው		

ክፍል ሁለት-ግንዛቤ (ኮግኒቲቭ) ምዘና ደረጃዉን የጠበቀ አነስተኛ የአእምሮ ሁኔታ ምርመራ (ውጤቱን ይፃፉ)

ተቔቁ	የጥያቄ ዓይነቶች	ውጤት
MM201	ይህ **ዓመተ-ምህረት** ስንት ነው?	_ / 1
	ይህ **ወቅት** ምንድን ነው?	_ / 1
	ይህ **ቀን** ምንድን ነው?	_ / 1
	ይህ **ቀን** ስንት ነው?	_ / 1
	ይህ **ወር** ምንድን ነው?	_ / 1
	የት **ሀገር** ውስጥ ነን	_ / 1
		_ / 1

	በምን **ክልል** ውስጥ ነን	
	የምን **ከተማ** ውስጥ ነን?	_ / 1
	የዚህ **የሆስፒታ** ስም ማን ይባላል?	_ / 1
	እኛ በየትኛው **የህንጻ ወለል** ላይ ነን?	_ / 1
MM202	ሶስት እቃዎችን ልሰየም ነው ። ስጨርስ እነሱን እንድትደግሙኝ እፈልጋለሁ ። ምን እንደሆኑ አስታውሱ ምክንያቱም በኋላ ላይ እንደገና **እንድትሰይማቸው እጠይቅዎታለሁ** - ሻንጣ / ቁልፍ / ክንድ [ከሶስት ያስመዘገበው]	_ / 3
MM203	እባክዎ ከ 5 ወደኋላ (5,4,3,2,1) ይቆጥሩ	__ / 5
MM204	እንድታስታውሱ የጠየቅኳቸው ሦስቱ ዕቃዎች ምን ነበሩ? (ቅደም ተከተል ሳይለይ ለእያንዳንዱ ትክክለኛ መልስ አንድ ነጥብ ያስገኛሉ)	__ / 3
MM205	እርሳስ እና **ሰዓት** ይሰይሙ	__ / 2
MM206	ከእኔ በኋላ አንድ ሐረግ **እንዲደግሙኝ** እፈልጋለሁ- በበግ በት በግ ገባ ?	_ / 1
MM207	ይህንን ያንብቡ እና ከዚያ በኋላ ምን እንደሚል ያድርጉ ። **ዓይኖት ይዝጉ** ከዚያ ወረቀቱን ለሰውየው ይስጡት ። ተሳታፊው ዝም ብሎ ካነበበ እና ዓይኑን ካልዘጋ ፣ ቢበዛ ወደ ሶስት ጊዜ መድገም ይችላሉ ። ዓይኖቹን የሚዘጋ ከሆነ ብቻ አንድ ነጥብ ያስቆጥሩ	_ / 1
MM208	ለሰውየው እርሳስ እና ወረቀት ይስጡት -በዚያ ወረቀት ላይ ማንኛውንም የሚላ ዓረፍት ነገር ይጻፉ ይበሉ. አረፍተ ነገሩ ትርጉም ሊኖረው ይገባል ። የፌደል አጻጻፍ ስህተቶችን ችላ ይበሉ።	_ / 1
MM209	በሰውየው ፊት ዲዛይን ፣ መጥረጊያ እና እርሳስ ያስቀምጡ ። እባክዎ ይህንን ንድፍ ይቅዱ ይበሉ። ብዙ ሙከራዎችን ፍቀድ። ሰውየው እስኪያልቅ ድረስ ይጠብቁ እና መልሰው ያስረክቡታል። በትክክል ለተገለበጠ ዲያግራም አንድ ነጥብ ያስመዝግቡ። ሰውየው በሁለት ባለ አምስት ጎን ስዕሎች መካከል ባለ አራት ጎን ስዕል መሳል አለበት	_ / 1
MM210	ሰውዬው ቀኝ ወይም ግራ እጅ ከሆነ ይጠይቁ ወረቀት በቀኝ / በግራ እጅዎ ይውሰዱት (የትኛው	በተቃራኒው እጅ ወረቀት ይውሰዱ	_ / 1

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	ያልሆነ ነው) ፤ ወረቀቱን በግማሽ አንድ ጊዜ በሁለተኛ ፎቅ አሳሙ እጅ አጣጥፈው በማጠፍ ወረቀቱን መሬት ላይ አድርገው ፡፡		_ / 1
		መሬት ላይ ያድርጉት	_ / 1
ጠቅላላ			
ውጤት			_ / 30

ክፍል ሶስት-ክሊኒካዊ መጠይቆች - (እንዲሁም የታካሚውን ካርዶች ይመልከቱ)

ሥር የስደደ በሽታ			
PM.301	ሥር የስደደ በሽታ አለብዎት?	1. አዎ 2. አይ	
PM.302	አዎ ከሆነ ለጥያቄው <u>301</u> ከየትኛው ነው ምርመራ	1. የስኳር በሽታ 2. የደም ግፊት 3. ስትሮክ 4. ሌሎች (ይግለጹ)	
የስነአምሮ በሽታ			
PM.303	በማንኛውም የስነልቦና በሽታ በሽታ ተመርምረው ያውቃሉ?	1. አዎ 2. አይ	
PM.304	ለጥያቄው አዎ ከሆነ ከሚከተሉት ውስጥ የትኛው ምርመራ ነው	1. ከፍተኛ የመንፈስ ጭንቀት 2. ስኪዞፈሬንያ 3. የጭንቀት መታወክ	
PM.305	ሆስፒታል መተኛት የሚያስፈልግዎ አንጎል የአንጎል ጉዳት አጋጥሞዎታል ?	1. አዎ 2. አይ	
PM.306	ለጥያቄ 208 መልሶ አዎ ከሆነ ራሶትን ያሳቱት ለስንት ደቂቃ ነበር	1. 30 ደቂቃዎች 2. <30 ደቂቃዎች 3. ሌላ (ይግለጹ) 4. አልሳትኩም	
PM.307	ከዚህ በፊት የመስማት ችግር	1. አዎ 2. አይ	
PM 308	የቀድሞው የማየት ችግር	1. አዎ 2. አይ	

| PM309 | የግላስጎው ኮማ ሚዛን (GCS) | 1. 13-15
2. 9-12
3. 3-8 | |

PM310	የጭንቅላት ጉዳት ዓይነቶች	1. ዝግ 2. ዘልቆ መግባት	
PM311	የጭንቅላት መጎዳት ምክንያቶች	1. የሞተር ተሽከርካሪዎች አደጋ 2. መውደቅ 3. ስፖርት 4. መዋጋት 5. ሌሎች	
PM312	ሴላ የሰውነት ክፍል ጉዳት	1. አዎ 2. አይ	
PM313	የ አዎ ከሆነ ጥያቄ ቁ 204 ከሚከተሉት ውስጥ የትኛው ነው ይጥቀሱ	1. እግሮች እና ጭኖች 2. የአከርካሪ አጥንት እና የአከርካሪ ገመድ 3. ሌሎች (ይግለጹ)	
PM314	የአሁኑ የሕክምና ከትትል	1. ተኝተዉ 2. የተመላላሽ ታካሚ ህክምና	
PM315	ወቅታዊ የሕክምና ዓይነቶችን ይዘርዝሩ		

ክፍል IV: ሰለ እደንዛዥ እጽ አጠቃቀም ጥያቄዎች (ASSIST V3.0)

ASS1	በህይወት ዘመንዎ የሚከተሉት እደንዛዥ እጽ ተጠቅመዉ ያዉቃሉ?				አዎ	የለም
	አልኮል				3	0
	ሲጋራ				3	0
	ጫት				3	0
	ካናቢስ				3	0
	ሌላ ካለ ይጠቀስ ------------				3	0
ASS2	መልሶ አዎ ከሆነ ባለፉት 3 ወራት ዉስጥ ምን ያህል ጊዜ ተጠቅመዋል?	በጭራሺ	እንዴ/ሁለቴ	በወሩ	በየሳምንቱ	በየቀኑ
	አልኮል	0	4	5	6	7
	ሲጋራ	0	4	5	6	7
	ጫት	0	4	5	6	7
	ካናቢስ	0	4	5	6	7
	ሌላ ካለ ይጠቀስ -------------	0	4	5	6	7

ASS3	ባለፉት 3 ወራት ዉስጥ ምን ያህል ጊዜ ለሚጠቀሙት እጽ ከፍተኛ የሆነ አምጣ አምጣ የሚል ስሜት ተሰምቶት የዉቃል?	በጭራሺ	እንዴ/ሁለቴ	በየወሩ	በየሳምንቱ	በየቀኑ
	አልኮል	0	5	6	7	8
	ሲጋራ	0	5	6	7	8
	ጫት	0	5	6	7	8
	ካናቢስ	0	5	6	7	8
	ሌላ ካለ ይጠቀስ -------------	0	5	6	7	8

AS4	ባለፉት 3 ወራት ዉስጥ እጹን በመጠቀምዎም ያህል ጊዜ ኢኮኖሚዊ ፣ ማህበራዊ ፣ አካላዊና ህግ ነክ ችግሮች መጥቶብዎታል?	በጭራሺ	እንዴ/ሁለቴ	በየወሩ	በየሳምንቱ	በየቀኑ
	አልኮል	0	4	5	6	7
	ሲጋራ	0	4	5	6	7
	ጫት	0	4	5	6	7
	ካናቢስ	0	4	5	6	7
	ሌላ ካለ ይጠቀስ -------------	0	4	5	6	7

AS5	ባለፉት 3 ወራት ዉስጥ ምን ያህል ጊዜ በመጠቀምዎ መስራት ያለብዎትን ነገር ሳይሰሩ ቀርተዋል?	በጭራሺ	እንዴ/ሁለቴ	በየወሩ	በየሳምንቱ	በየቀኑ
	አልኮል	0	5	6	7	8
	ሲጋራ	0	5	6	7	8
	ጫት	0	5	6	7	8
	ካናቢስ	0	5	6	7	8
	ሌላ ካለ ይጠቀስ -------------	0	5	6	7	8

AS6	ቤተሰብ ወይም ጋዳኛ ስለ አደንዛዠ እጽ አጠቃቀምዎ ነግሮዋት/ቅሬዳ አቅርበሎት ያዉቃሉ?		በጭራሺ	ባለፉት 3 ወራት ዉስጥ	አዉ ነገር ግን ባለፉት 3 ወራት ዉስጥ አይደለም
	አልኮል		0	6	3
	ሲጋራ		0	6	3
	ጫት		0	6	3
	ካናቢስ		0	6	3
	ሌላ ካለ ይጠቀሱ		0	6	3
AS7	ለማቆም ወይም የሚወስዱትን መጠን ለማቆጣጠር ሞክረህ ነገር ግን ያስቸገረህ ጊዜ ነበር?		በጭራሺ	አዉ ባለፉት 3 ወራት ዉስጥ	አዉ ነገር ግን ባለፉት 3 ወራት ዉስጥ አይደለም

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አልኮል	0	6	3
ስጋራ	0	6	3
ጫት	0	6	3
ካናቢስ	0	6	3
ለላ	0	6	3

ቁልፍ ፡ ለጥያቄ AS2-AS5 ፡ **በጭራሽ፡** ላለፉት 3 ወራት አልተጠቀመም **አነደ/ሁለቴ፡** ባለፉት 3 ወራት ዉስጥ አንደ/ሁለቴ ተጠቀምዋል **በየወሩ፡** ባለፉት 3 ወራት ዉስጥ 4 ጊዜ ተጠምዋል **በየሳምንት፡** ባለፉት 3 ወራት ዉስጥ በሳምንት 1-4 ግዜ ተጠቅሟል **በየቀኑ፡** ባለፉት 3 ወራት ሳምንት ዉስጥ 5-7 ግዜ ተጠቅመዋል

Annex III : Afan oromoVersion Information sheet

 waraqaa odeeffannoo (Information sheet – afaan oromoo version)

Kabajamoo

Ani maqaan koo Arif mohammedawol n jedhama yeroo ammaa kana universiitii jimma, kutaa barnoota yaala fayyaa sammuutti, ogummaa yaala sammuu (Integrated community and clinical mental health) tiin digrii lammaffaa koon hojjechaa jira. Isinis qorannoon gaggeessu keessatti akka hirmaattaniif affeeramtaniittu. Matadureen qorannoo koos kutaa yaala sammuu universiitii jimmaatti rakkoo miidhama sammuu irra gahuun(traumatic brain injury), hammantaa dhibee irraanfii fi hubbannoo dhabuu (cognitive impairment) fi wantoota isaan walqabatanii madaaluufi.

a. yeroo qoranichaa yeroon qorannoo kanaa ji'a 1-2 keessaatti akkaataa hirmaataan qoranichaa argame irratti hundaa'a

b. adeemsa : adeemsi isaa salphaa yoo tahu, innis gaaffiwwan muraasa tahaniif deebii kennuu qofa

c. faayidaan argamu : odeeffannoo isinii fi hirmaattota bieraa irraa argamu dhibee adda baasuu fi yaala gahaa tahe kennuuf ni gargaara.

d. iccitummaa odeeffannoo: faayidaa dhuunfaa keessanii fi iccitii keessan ni kabajna. Odeeffannoon isin nuuf laattan kamiiyyuu faayidaa qorannoo kanaatin ala nama kamiifiyyuu darbee hinkennamu. Yoo qorannichi ummataaf ifoomeyyuu maqaan keessan hinkatabamu. Odeeffannoon isin akka huirmaataatti nuuf laattan hundisaa of eeggannoo cimaadhaan taa'a.

e. qorannicharratti hirmaachuuf heyyamamaa tahuufi diduu; qorannoo kanarratti hirmachuu dhiisuuf mirga guutuu qabdu. Eraga hirmaannaa jalqabdaniis yoo tahe addaan kutuuf mirga qabdu . murtoon keessan kun tajaajila fayyaa isin asitti argattan irratti miidhaa tokkoyyuu hinqabu.

Ani obbo/aadde _____ qorannoo kanarratti akkan hirmaadhuuf , akkasumas gaaffiwwaniif deebii akkan laadhuuf gaafatameera. Kaayyoon qorannoo kanaas naaf ifoomeera . waraqaan odeeffannoos naaf dubbifameera(dubbiseera) ; gaaffiiwwan muraasan gaafedheefis ibsi gahaan naaf laatameera. Anis qorannoo kanarratti hirmaachuuf heyyamamaa tahuu koo guca waliigaltee kanaan malllattoo koon nan ibsa.

Mallattoo _____ guyyaa _____

Qorannoo barbaachisaa tahe kanarratti hirmaachuu kessaniif guddaa galatoomaa

Odeeffannoo quunnamtii : gaaffii kamiiyyuu yoo qabaattan teessoo armaan gadiin quunnamuu dandeessu .

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email; arifopsy@gmail.com

gargaarsa keessaniif guddaa galatoomaa

Kutaa I:- gaaffilee hawwaasummaa

Qajeelfama: Gaaffileen armaan gadii odeeffanoowwan hawwaasummaa irratti xiyyeefatu. Deebii keessan isa sirrii ta'e filadhhaa

Lakk	Gaaffilee	Qabiyyee	Yaada
SD.101	umurii		
SD.102	saala	1. Dhiira 2. dubartii	
SD.103	Haala fuudha fi heerumaa	1. kan fuudhe/herumte 2. kan hin fune/herumne 3. kan jalaa du'e 4. kan wal hiikan	
SD.104	Sadarkaa barnootaa	6. 1-8 7. 9-10 8. 11-12 9. kollejjii fi isaa oli 10. barnoota idilee hin baranne	
SD.106	Amantii	1. Islaama 2. Ortodoksii 3. Pirotestaantii 4. Kaatolikii 5. Waaqeffataa 6. Kan biraa adda baasi	
SD.107	Haala hojii	1. Qonnaan bulaa 2. Daldalaa 3. Hojjataa mootummaa 4. Hojjataa dhuunfaa 5. Haadha manaa 6. Kanaa biraa/ adda baasi	

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SD.108	Galiin kee ji'aa meeqa?		

Kutaa II: gaffillee qurrannoo kutaa Sammuu wa daggatan/irranfatan qorachuf qophan

	Gosa gaffillee	Qabxii	Qabxi waliga la	Gosa gaffillee	Qabxi
MM 201	Bari keesa jiru kun bara meeqa?	-/1		Biiyyi keesa jiru kun maal jedhama?	-/1
	Waqxin keesa jiru kun mal jedhama?	-/1		Naannoon keesa jiru kun maal jedhama?	-/1
	Guyyaan har'a meeqa?	-/1		Magaalli keessa jiru kun maal jedhama?	-/1
	Guyyaan har'a maal jedhama?	-/1		Maqaan hospitaala kanaa maal jedhama?	-/1
	Ji'i keesa jiru kun maali?	-/1		Gamoo meeqaffadha bakki jiru kun?	-/1
MM 202	Amma maqaa wantoota saditin wama yeroon xumure irra deebite akka wamtuf wanin si gafadhuf siritti caqqasi.Borsa, furtuu ,harka(qabxi sadira qabama)				__/3
MM 203	Lakkofsa 5 irra ka'iti gara duubati lakkayi.1,2,3,4,5				__/5

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MM 204	Wantotni sadan siti hime sun malfadha? (tokkon tokkon isani qabxi tokko tokko qabu akka tartiba isaniti)		_/3
MM 205	Maqaa kanaa Wami (irsasi fi sa'ati)		_/2
MM 206	gaalee kana eegan ani waamee atis akka irra deebitee jetun si gaafadha		_/1
MM 207	Kana dubbisiti wan inni jedhu hojedhu(ija kee dunuunfadhu jedhii barreessi. yoo namich dubise ija isa dun"unfachu dide yoo tiqate si'a sadi irra debisa .qabxi tokko kayif yoo ija isa cufate qofa .)		_/1
MM 208	waraqaa fi irsasi Fudhu barefama gutuu ta.e tokko waraqicha irrati bareesi.wanti ati bareesite hiika qabachu qaba.dogogora qubeti hin yaada.in.		_/1
MM 209	Fakkii armaan gadii kasi . amma inni kase tumuruti egi. fakki isa sirridhaf qapxi tokko kenif. Namichi dirqama sanduqa rog afre qabu bocu qaba giddu sanduqa laman roga shan qabaniti.		_/1
MM 210	namicha gafadhu (harka mirga ykn bita ta'uu isaa) . waraqa kana harka kee mirga ykn bita fudhuti (kan yeroo hunda itti gargaramtun), waraqaticha yeroo tokko harka kee lamaninu fuudhi walakkaatti dachaasi ,waraqicha lafa irra kayi	Fudhu waraqicha harka keetin siriti	_/1
		Walaka isa gadhisi	_/1
		Kayi lafa irra	_/1

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Qabxii walii galaa	-/30

kutaa III: gaaffiilee haala kilinikaalaa

Haala dhibee duraanii			
PM.301	Dhukkuba keessoo yeroo dheeraa qabdaa?	1.eeyyee 2. lakkii	
PM.302	Gaaffii lakk 202 deebii yoo eyyee ta'e, dhukkubni kee kami?	1.dhibee sukkaaraa 2. dhibee dhiibbaa dhiigaa 3. dhibee istirookii 4.kan biroo adda baasi	
PM.303	Yeroo isiin dhukkuba sammuu mudattan ni jiraa?	1. eeyyee 2. lakkii	
PM.304	Gaaffii lakk 303 deebii yoo eyyee ta'e, dhukkubni kee kami?	7. major depression 8. schizophrenia 9. bipolar 10. anxiety 11. PTSD 12. other specify	
PM.305	Ammaan duraa sammuu keerra balaan gahee(mana yaalaa si ciibsu) turee?	1. eeyyee 2. lakkii	
PM.306	Gaaffii lakk 305 deebiin yoo eyyee ta'e, hammamiif of wallaaltani?	4. <30 daqiiqaa 5. >30 daqiiqaa 6. kan biroo adda baasaa	

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PM.307	Ammaan dura rakkoo dhageettii qabduu?	1. eeyyee 2. lakkii	
PM.308	Ammaan dura rakkoo qaroo qabduu	1. eeyyee 2. lakkii	
PM.309	Glasgow coma scale	4. 13-15 5. 9-12 6. 3-8	
PM.310	Gosa balaa sammuu	3. cufaa 4. banaa	
PM.311	Wanta balaa sammuu geessise	6. balaa konkolaataa 7. kufiitii 8. balaa isportii 9. wallaliisaa 10. kan biroo adda baasi	
PM.312	Balaa qaama biraa irra gahe	3. eeyyee 4. lakkii	
PM.313	Gaaffii lakk 304 deebiin yoo eyyee ta'e, qaama kamirraa?	1. Miila 2. Harka 3. Lafee dugda fi spinal kordii 4. Kan biro adda baasi	

PM.314	Haala hordoffii yaalaa kan yeroo ammaa	1.ciibsamanii yaalamuu 2. deddeebin yaalamu	
PM.315	Qoricha/dawaa amma fudhachaa jirtu tarreessi		

kutaa IV Gaffilee Wantoota Araada Nama Qabsiisanii Qorachuuf Qophaa'e (Assist-V3.0)

AS1	G1: Jireenya kee keessatti waantota araada naman qabsiisan kanneen armaan gaditti caqasaman fayyadamtee beektaa?	Eeyye	Lakkii		
	Dhugaatii Alkoolii	3	0		
	Tamboo/sigaaraa	3	0		
	Caatii/jimaa	3	0		
	Canabisii/Gaangaa	3	0		
	Kanneen biroo yoo jiraatan caqasi	3	0		
AS2	G2: deebiin kee eeyyee yoo ta'e wantoota araada nama qabsiisa kaneen ji'oota sadan darban keessatti fayyadamtee beektaa?	Tasumaa	Yeroo tokko/lama	Ji'a ji'aan	Turban torbaniin	Guyyaa hunda/ hoggayyu
	Dhugaatii alkoolii	0	2	3	4	6
	Tamboo/sigaaraa	0	2	3	4	6
	Chaatii/Jimaa	0	2	3	4	6
	Canaabis/Gaanjaa	0	2	3	4	6
	Kan biraa yoo jiraate caqasi	0	2	3	4	6
AS3	G3:ji'oota sada darban keessa wantoota araada nama qabsiisa ati fayyadamaaa jirtu kana arraarri kan nama hawwisiisu yeroo akkamii sitti dhufa	Tasumaa	Yeroo tokko/lama	Ji'a ji'aan	Turban torbaniin	Guyyaa hunda/ hoggayyu
	Dhugaatii alkoolii	0	2	3	5	6
	Tamboo/sigaaraa	0	2	3	5	6

Chaatii/jimaa	0	2	3	5	6
Canaabisii/gaanjaa	0	2	3	5	6
Kan biroo	0	2	3	5	6

AS4	G4:Ji'oota sadan darban keessatti araada fayyadamuu yeroo hagamiif rakkoo fayyaa, rakkoo hawaasummaa, rakkoo seermaleessummaa fi rakkoo maallaqaaf si saaxilee beekaa	tasumaa	Yeroo tokko/l ama	Ji'a ji'a an	Turban torbaanii n	hogga yyuu
	Dhugaatii alkooloii	0	4	5	6	7
	Tamboo/sigaaraa	0	4	5	6	7
	Chaatii/Jimaa	0	4	5	6	7
	cannabisii	0	4	5	6	7
	Kan biroo	0	4	5	6	7
AS5	G5: ji'oota sada darban keessa sababa araadafayyadamuu keessaniif yeroon isiis itti gaafatummaa keessan utuun hin ba'in haftan hagami?	tasumaa	Yeroo tokko/l ama	Ji'a ji'a an	Turban torbaanii n	hogga yyuu
	Dhugaatii alkoolii	0	5	6	7	8
	tamboo	0	5	6	7	8
	Caatii/Jimaa	0	5	6	7	8
	Canaabissii/gaanjaa	0	5	6	7	8
	Kan biroo	0	5	6	7	8

AS6	G6: Araada fayyadamuu keessaniif hiriyaan yookiim namni biro takkaa sin ceepha'ee beeekaa?	gonku maa	Eeyyee ji'a sadan darban keessa	Eeyyeen garuu j'ootaa sada darbaa dura
	Dhugaatii alkoolii	0	6	3
	Tamboo/sigaaraa	0	6	3
	Caatii/Jimaa	0	6	3
	Canaabisii/ganja	0	6	3

			0	6	3
	Kan biroo		0	6	3
AS7	G7. Araada fayyadamtu kana takkaa dhaabuuf yookiin ammo hanga fudhattu nto'achuuf yaaltee beektaa?	gonku maa	Eeyyee ji'a sadan darban keessa	Eeyyeen garuu j'ootaa sada darbaa dura
	Dhugaatii alkoolii		0	6	3
	Tamboo/sigaaraa		0	6	3
	Caatii/Jimaa		0	6	3
	Canaabisii		0	6	3
	Kan biroo		0	6	3

Hiikkaa: gaaffilee AS2-AS5 jiraniif gonkuma**:** ji'a sadan darban keessa hin fayyadamne **altokko/al-lama:** ji'a sadan darban keessa yeroo tokko/yeroo lama fayyadame: **Ji'aa ji'aa:** ji'oota darban sadan keessatti ji'atti yeroo 1-3 yoo fayyadame **turban torbaniin:** ji'oota sadan darbaniif torbanitti yeroo 1-4 fayyadame guyya **guyyaatti**: torbanitti guyyaa 5-7 yoo fayyadame.

ASSURANCE OF PRINCIPAL INVESTIGATOR

The undersigned agrees to accept responsibility for the scientific, ethical and technical conduct of the research project and for provision of required progress report as per terms and conditions of the institution.

Name of the student: _____

Date: _____ Signature: _____

Approval of the advisors

1. Name of the first advisor: Matiwos Saboka (Assistant professor, PHD fellow)

     Date: _____ Signature: _____

2.Name of the second advisor: Liyew Agenagnew (BSc, MSc, Assistant professor)

     Date: _____ Signature: _____

3. Name of internal examiner: Worknesh Tesema (BSc, MSc, Assistant professor)

     Date: _____ Signature: _____